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ELLERKELDIA, A JUNIOR SYNONYM OF *HYPOPLECTRODES,* WITH REDESCRIPTIONS OF THE TYPE SPECIES OF THE GENERA (PISCES: SERRANIDAE: ANTHIINAE)

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Abstract.—Characters that may prove useful in defining the serranid subfamily Anthiinae are briefly discussed, and a single synapomorphy, vertebral number, that unites the species of *Hypoplectrodes* is recognized. *Ellerkeldia* is considered a junior synonym of *Hypoplectrodes*; the relationships of *Hypoplectrodes* are discussed; the type species (*Plectropoma semicinctum* and *P. nigrorubrum*) of the two nominal genera are redescribed; and *Scopularia rubra* is demonstrated to be a junior synonym of *H. semicinctum. Hypoplectrodes semicinctum* is known from shallow waters off Juan Fernández and San Félix islands, and has been reported from Easter Island; *H. nigroruber* has been collected from shallow Pacific and Indian ocean waters off southeastern, southern, and southwestern Australia.

Some years ago, after examining the original descriptions of *Plectropoma semicinctum* and *Scopularia rubra,* one of us (PCH) concluded that the two species are synonymous. More recently the senior author examined the holotype of *P. semicinctum,* compared it with the original description of *S. rubra,* and arrived at the same conclusion. In view of the similarities of the descriptions in the literature of species of *Ellerkeldia* and of *Hypoplectrodes nigroruber,* the senior author examined the syntypes of *H. nigroruber* and determined that this species is congeneric with *P. semicinctum.* Because *H. nigroruber* is the type (and until now the only) species of *Hypoplectrodes* and *P. semicinctum* is the type species of *Ellerkeldia,* it follows that *Hypoplectrodes* and *Ellerkeldia* are subjective synonyms. The purposes of this paper are to redescribe *Hypoplectrodes nigroruber* and *H. semicinctum* and to document the assertions of synonymy made above.

Abbreviations and Methods

Institutional abbreviations are as listed in Leviton et al. (1985); ICZN denotes the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1985); SL signifies standard length and TL, total length.

Methods for making counts and measurements are those of Anderson & Heemstra (1980), except as noted below. Scales below the lateral line were counted obliquely, both in posterodorsal and anterodorsal directions from the origin of the anal fin (the posterodorsal direction is apparently the direction used by de Buen (1959) on *Scopularia rubra*).

Instead of scales in the lateral line, de Buen (1959) gave counts of scales in a longitudinal line. We interpret this to mean scales along the body in a mid-lateral line to base of caudal fin. It is difficult to get repeatable counts in a single longitudinal

line of scales along the body; therefore our counts of "scales in a longitudinal line" are of oblique rows of scales along mid-body from cleithrum to base of caudal fin.

De Buen (1959) gave the lengths of specimens of *S. rubra* as total lengths, but the body proportions as percentages of standard length or head length. Based on the relationship of standard and total lengths in the specimens of *Hypoplectrodes semicinctum* examined, we have estimated the standard lengths of the types of *S. rubra*. Some of de Buen's measurements of *S. rubra* require interpretation; we have construed them as follows: height of body as greatest depth of body, width of body as greatest width of body, preorbital as length of snout, preventral as prepelvic length (premaxillary symphysis to origin of pelvic fin), and pectoral base as width of base of fin.

In the text some measurements are presented as quotients of the standard length, length of head, length of snout, or diameter of orbit. These quotients are rounded off to the nearest 0.05.

Anthiinae

Johnson (1983) defined the family Serranidae with respect to the Percichthyidae (sensu Gosline 1966) on the basis of three reductive specializations, and demonstrated that members of the Serranidae share at least one innovative specialization—thus demonstrating the monophyly of the family. Johnson (1983, 1988) followed Gosline (1966) in recognizing three subfamilies in the Serranidae, the Serraninae, Epinephelinae, and Anthiinae, but was able to define only the Epinephelinae on a character that can be interpreted as being uniquely derived. Olmi (1986) found a reductive character in the branchial skeleton that may prove to be a synapomorphy uniting the members of the Anthiinae. In all of the Atlantic and eastern Pacific species of anthiines that she examined and in all of the Indo-Pacific species for which she could obtain data the second epibranchial lacks a tooth plate, whereas it is present in all serranines and epinephelines observed in her study. She concluded that the absence of this tooth plate in the Anthiinae appears to be the derived condition in the Serranidae.

As pointed out by Johnson (1983) it is difficult to evaluate the importance of vertebral number in determining relationships among the Percoidei; nevertheless this character may ultimately prove useful in circumscribing the limits of the Anthiinae. Members of the Serraninae and Epinephelinae almost always have 24 vertebrae, but species of Anthiinae have 25 to 28, usually 26 (see section on relationships of *Hypoplectrodes*).

Until additional studies have been conducted the Anthiinae will continue to be an inadequately defined group. Despite this shortcoming the recognition of the Anthiinae as a distinct taxon will continue to serve a useful purpose because the concept anthiine unites a plethora of look-alike species that share at some level within the Serranidae uniquely derived characters.

Hypoplectrodes Gill, 1862

Hypoplectrodes Gill, 1862:236 (type species *Plectropoma nigrorubrum* Cuvier, 1828, by monotypy).

Gilbertia Jordan, 1891:346 (type species *Plectropoma semicinctum* Valenciennes, 1833, by original designation; preoccupied by *Gilbertia* Cossman, 1889, a genus of Mollusca).

Ellerkeldia Whitley, 1927:298 (type species *Plectropoma semicinctum* Valenciennes, 1833, by virtue of the facts that *Ellerkeldia* was proposed as a replacement name for *Gilbertia* Jordan, 1891, preoccupied by *Gilbertia* Cossman, 1889, and that a replacement name retains the type of the prior name [ICZN, Article 67h]; Whitley, 1927, incorrectly considered *Plectropoma annulatum* Günther, 1859, as the type species).

Scopularia de Buen, 1959:95 (type species *Scopularia rubra* de Buen, 1959 [=*Plectropoma semicinctum* Valenciennes, 1833], by original designation).

Diagnosis.—A genus of anthiine serranid fishes characterized by the following: 27 or 28 vertebrae (usually 27, very rarely 26), three predorsal bones, 17 principal caudal-fin rays (15 branched), one to three antrorse spines on preopercle, supramaxilla typically present, and maxilla without scales.

Gender.—Generic names such as *Hypoplectrodes,* with the suffix "–odes," are substantivated adjectives and are masculine (ICZN, Article 30b). Accordingly, adjectival specific names in combination with *Hypoplectrodes* must have the masculine termination (ICZN, Article 31b).

Species of Hypoplectrodes.—Allen & Moyer (1980:329) recognized six species in the genus *Ellerkeldia* (herein considered as species of *Hypoplectrodes*), presented a key for their identification, and stated that they "are confined to shallow temperate seas of New Zealand and southern Australia." They overlooked the type species of the genus *Ellerkeldia, Plectropoma semicinctum* (=*H. semicinctum*), from the eastern Pacific, presumably because Whitley (1927) mistakenly considered *Plectropoma annulatum* Günther, 1859, as the type species.

In addition to *H. semicinctum* and the type species of *Hypoplectrodes, H. nigroruber,* from waters off Australia, the other nominal species of the genus are: *H. annulatus* (Günther, 1859), *H. huntii* (Hector, 1875), *H. jamesoni* Ogilby, 1908, *H. maccullochi* (Whitley, 1929), *H. ruber* (Allen, 1976), which is in need of a replacement name because it is a junior secondary homonym of *Scopularia rubra* de Buen, 1959 [=*H. semicinctum*], and *H. wilsoni* (Allen & Moyer, 1980). John R. Paxton informed us (in litt., 23 Sep 1987) that he and Gerald R. Allen are in the process of revising *Ellerkeldia* (=*Hypoplectrodes*) and that they recognize two undescribed species of that genus from eastern Australia and New Zealand.

Relationships of Hypoplectrodes.—Randall (1980:102) considered *Ellerkeldia* (=*Hypoplectrodes*) to be "closely related to *Plectranthias*" Bleeker, 1873, and gave characters for separating the two genera. Heemstra & Anderson (1983) pointed out that Randall's characters would not distinguish these genera, but suggested that vertebral number might be useful (*Plectranthias* with 26 vertebrae, *Ellerkeldia* with 27). Doubt about the utility of vertebral number in distinguishing the genera is cast by the discovery of a new species of *Plectranthias* (*P. bilaticlavia*) from the Kermadec Islands off northern New Zealand by Paulin & Roberts (1987). The holotype of their new species has 27 vertebrae; the two paratypes (and only other specimens known) each have 26. Radiographs of the types of *P. bilaticlavia* revealed no indications of fusions or deformities of the vertebral columns. It is possible that a count of 27 vertebrae is rare for this species.

In order to evaluate the relationship of *Hypoplectrodes* with *Plectranthias,* detailed comparative studies of the species of the two genera are needed. This will be a formidable task because there are 10 species (8 with names, two undescribed) of *Hypoplectrodes* (see previous section) and 37 species of *Plectranthias* (Randall 1980, Fourmanoir & Rivaton 1980, Katayama & Masuda 1980, Fourmanoir 1982, Raj & Seeto 1983, Heemstra & Anderson 1983, Paulin & Roberts 1987). Further study will likely lead to the recognition at the generic level of one or more of the eight genera subsumed by Randall (1980) into *Plectranthias.* One of those yet to be resurrected genera is a logical candidate for recognition as the sister genus of *Hypoplectrodes.* A more precise estimation of these generic relationships is beyond the scope of this work.

In an attempt to provide a character analysis for *Hypoplectrodes* we consider other anthiines as the first outgroup, other ser-

ranids (serranines plus epinephelines) as the second, and other percoids as the third. In this analysis the only character whose states we feel confident in polarizing is vertebral number. Species of *Hypoplectrodes* have 27 or 28 vertebrae (one of 33 specimens of *H. maccullochi* examined with only 26; see Heemstra & Anderson 1983, and the generic diagnosis); other anthiines usually have 26 (one of three known specimens of *Plectranthias bilaticlavia* with 27, see above; *Giganthias immaculatus* Katayama, 1954, if indeed it is an anthiine, with 25; Boulenger 1895; Katayama 1959, 1960; Gosline 1966; Anderson & Heemstra 1980; Heemstra & Anderson 1983; Johnson 1983; our unpublished data). Other members of the Serranidae (serranines and epinephelines) almost always have 24 vertebrae (*Niphon,* a primitive epinepheline, with 30; *Pseudogramma* with 26, *Suttonia* with 26 or 27, *Aporops* with 27 or 28—these last three genera being highly derived grammistin epinephelines; Boulenger 1895; Katayama 1959, 1960; Gosline 1966; Johnson 1983; Leis & Rennis 1983; Carole C. Baldwin, pers. comm.). Forty-five of the 91 groups of percoids listed by Johnson (1984, Table 120) have 24 or 25 vertebrae lending support to Gosline's (1968, 1971) assertion that "the basal percoid number" is 24 or 25. In view of the preceding we interpret 24 or 25 as the most primitive character state for vertebral number in the Serranidae and 26, 27, and 28 as progressively more derived states. Accordingly, then, we consider the number of vertebrae (27 or 28) as a synapomorphy uniting the species of *Hypoplectrodes.*

Hypoplectrodes nigroruber and *H. semicinctum*

Because *Hypoplectrodes nigroruber* and *H. semicinctum* are very similar, it is appropriate to characterize those two species under a single heading and then to elaborate as necessary under the respective species accounts.

Single dorsal fin (not divided to base between spinous- and soft-rayed parts). Margin of anal fin broadly rounded to squared off posteriorly. Second spine of anal fin more robust than first or third, considerably longer than first, usually slightly longer than third. Pectoral fin symmetrical, middle rays longest; dorsalmost ray unbranched, the others usually branched. Pelvic-fin rays I, 5; pelvic fin inserted at vertical from base of pectoral fin, falling short of anal fin. Caudal fin truncate; principal rays 9 + 8; branched rays 8 + 7. Procurrent spur (Johnson 1975) absent. Parhypural and five autogenous hypurals present; epurals three. No dorsal trisegmental pterygiophores. Formula for predorsal bones, anterior neural spines, and anterior dorsal pterygiophores 0/0+0/2/1+1/.

Scales ctenoid, resembling those of serranine serranids (i.e., with rows of ctenial bases [Hughes 1981] present proximal to marginal cteni); no secondary squamation. Most of head covered with scales; dorsum and lateral aspect of snout, maxilla, supramaxilla, lower jaw, membranes between branchiostegals, and most of branchiostegals without scales; gular region usually without scales; squamation variously developed on interopercle, but usually confined to posterior part. No axillary process at base of pelvic fin. Squamation well developed on bases of all fins and continuing for some distance onto fins. Lateral line complete, extending to at least base of caudal fin (running parallel to dorsal body contour below dorsal fin, curving to near midlateral axis of body on caudal peduncle).

Supramaxilla present. Premaxillae protrusile. Posterodorsal border of maxilla not covered by elements of circumorbital series when mouth closed. Mouth terminal. Posterior margin of preopercle serrate; one to three antrorse spines on preopercle (one spine usually at angle or on ventral margin near angle, other spine(s) on ventral margin). Posterior margin of bony opercle with three spinous processes, middle one best de-

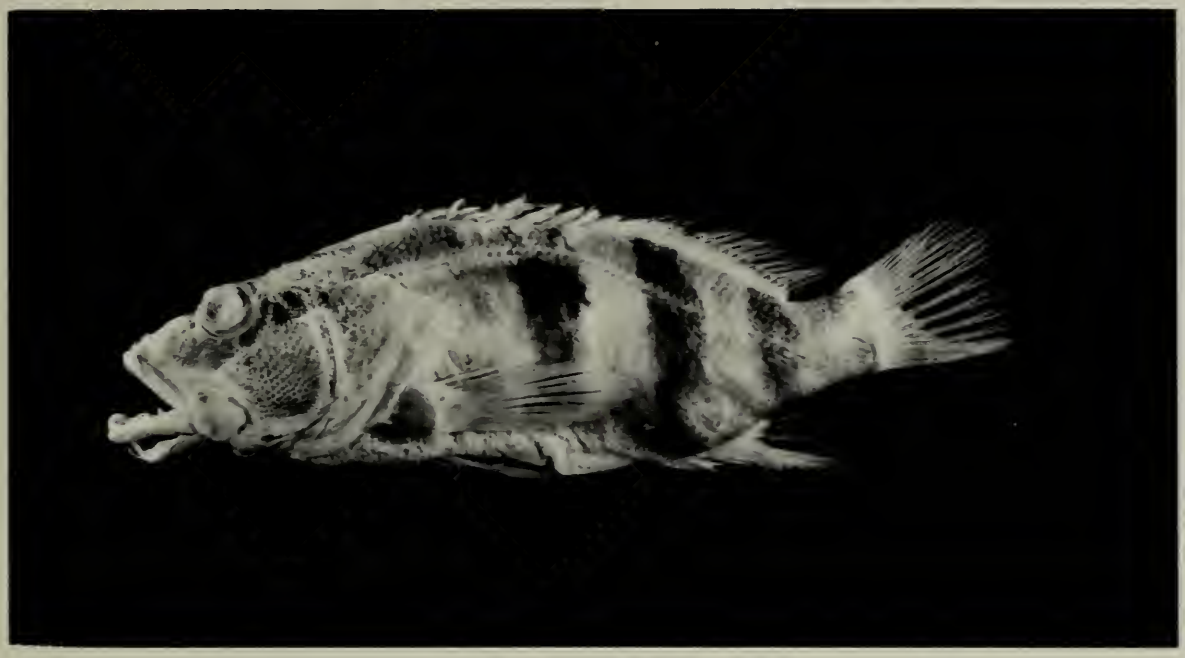

Fig. 1. Lectotype of *Plectropoma nigrorubrum*, MNHN 7776, 189 mm SL; Western Australia.

veloped. Distal margins of interopercle and subopercle usually smooth, occasionally with a few serrae or slightly roughened. On each side of snout, two closely set nares near eye. Snout usually longer than diameter of orbit. Diameter of bony orbit considerably greater than bony interorbital width. Branchiostegals seven. Gill arches four, with a slit behind fourth. Well developed gillrakers rather short (longest gillrakers usually shorter than longest gill filaments), anterior lower-limb rakers and most of upper-limb rakers rudimentary. Vomer and palatines with teeth; vomerine tooth patch chevron shaped, without a backward prolongation; palatine teeth in a longitudinal band. No teeth on tongue or pterygoids.

Hypoplectrodes nigroruber (Cuvier, 1828)
Figs. 1, 2; Tables 1–5

Plectropoma nigrorubrum Cuvier, 1828:402 (original description; lectotype, herein designated, MNHN 7776, 189 mm SL; type locality Port du Roi Georges [=King George Sound, Western Australia]).

Diagnosis.—This species appears to be distinguishable from all other species of *Hypoplectrodes* in morphology of the lateral-line scales (lateral-line tubes reaching posterior borders of scales; tubes of anterior lateral-line scales highly branched, becoming less so posteriorly, tubes of posteriormost scales bifurcate or unbranched) and in having an area of very small scales (on dorsum and dorsolateral part of body dorsal to lateral line) beginning at anterior end of dorsal fin and extending anteriorly to become continuous with scaly regions of head. Posteroventral corner of maxilla usually without prominent extension. Ventral margin of preopercle with one to three, usually two, antrorse spines; spines sometimes covered by skin. Vertebrae usually 27 (10 precaudal + 17 caudal), occasionally 28 (10 + 18). Pleural ribs on vertebrae 3 through 10 (3–11 in one of 15 specimens). Dorsal fin rays X, 16 to 18. Anal fin rays III, 8. Pectoral-fin rays 13 to 15, usually 14. Gillrakers, including rudiments, on first gill arch 5 or 6 + 12 to 16—total 17 to 22; developed gillrakers on lower limb 5 to 7. Tubed lateral-line scales 55 to 65, most frequently 57 to 63. Scales from anal-fin origin to lateral line 19 to 23 (counted posterodorsally), 23 to 28 (counted anterodorsally). Scales on cheek quite small; rows of cheek scales very difficult to count; number of cheek scale rows

Fig. 2. *Hypoplectrodes nigroruber,* AMNH 31307, 114 mm SL; Western Australia.

ca. 21 to ca. 29, usually ca. 22 to ca. 26. Pseudobranch with 26 to 36 filaments, tending to increase in number with increase in SL. Length of second anal spine 10.3 to 15.1% SL. Body encircled by four darkly pigmented bands.

Description.—Characters included in the combined description of *H. nigroruber* and *H. semicinctum* and those presented in the species diagnosis form part of the species description. Frequency distributions for a number of meristic traits are in Tables 1 to 4; morphometric data appear in Table 5.

Procurrent caudal-fin rays 8 to 10 (usually 8) dorsally, 6 to 9 (usually 8) ventrally. Epipleural ribs associated with first 9 or 10 vertebrae (infrequently with 10th). Anal trisegmental pterygiophores 0 to 5 (most frequently 4). Rows of scales between lateral line and mid-base of spinous dorsal fin 3 or 4 (usually 3). Scales from dorsal-fin origin to lateral line 4 to 7 (usually 5 or 6). Circumcaudal-peduncle scales 30 to 34 (most frequently 30 or 31).

Depth of body (at origin of dorsal fin) 2.80 to 3.15, length of head 2.25 to 2.45 in SL. Horizontal diameter of bony orbit 4.40 to 6.70 in length of head, 1.10 to 1.95 in length of snout. Bony interorbital width 13.20 to 19.45 in length of head, 2.30 to 4.40 in diameter of bony orbit. Lower jaw exceeding upper when mouth closed. Maxilla reaching vertical through posterior part of orbit to slightly beyond orbit. Anterior naris at distal end of short tube; posterior border of tube produced into a flap which reaches or falls just short of posterior naris when reflected. Premaxilla with wide band of small conical teeth; band narrower posteriorly; posterior teeth at anterior end of band (near

Table 1.—Frequency distributions of numbers of fin rays in two species of *Hypoplectrodes.* Separate counts from both left and right pectoral fins included. Counts of name-bearing types are indicated by asterisks.

	Dorsal soft rays								Anal soft rays			Pectoral-fin rays						
Species	16	17	18	19	20	21	22	$\bar{x}$	7	8	9	13	14	15	16	17	18	$\bar{x}$
H. nigroruber	2	10*	4					17.12		16*		1	29*	1				14.00
H. semicinctum				6*	15	16	1	20.32	1	36*	1			1	16*	57	2	16.79

Table 2.—Frequency distributions of numbers of gillrakers on first gill arch in two species of *Hypoplectrodes*. Counts of name-bearing types are indicated by asterisks.

	Upper limb																					
	Developed						Rudimentary								Sum (dev. + rud.)							
Species	1						3		4		5				4		5		6		$\bar{x}$	
H. nigroruber	16*								6*		10						6*		10		5.62	
H. semicinctum	38*						2		28		8*				2		28		8*		5.16	

	Lower limb																					
	Developed						Rudimentary										Sum (dev. + rud.)					
Species	5	6	7	8	9	$\bar{x}$	4	5	6	7	8	9	10	11	$\bar{x}$		12	13	14	15	16	$\bar{x}$
H. nigroruber	2	12*	2			6.00			4	6	4*	—	1	1	7.44		4	6	3*	1	2	13.44
H. semicinctum				21	17*	8.45	17	19*	2						4.61		4	28	6*			13.05

	Total (upper limb + lower limb)																					
Species	17				18				19				20				21				22				$\bar{x}$	
H. nigroruber	2				4				6*				1				1				2				19.06	
H. semicinctum	6				21				8				3*												18.21	

Table 3.—Frequency distributions of numbers of tubed lateral-line scales in two species of *Hypoplectrodes*. Counts of name-bearing types are indicated by asterisks.

Species	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	$\bar{x}$
H. nigroruber								1	—	2	1	4*	—	4	2	1	—	1	59.94
H. semicinctum	5	8	12*	8	3	—	—	2											50.16

symphysis) larger and recurved; usually one to a few teeth at anterior end of jaw enlarged into small canines; no teeth at symphysis. Dentary with band of small conical teeth; band considerably widened near symphysis; one to a few small canines present about one-third way from symphysis to posterior end of band; teeth at anterior end of band near symphysis mostly recurved—more posterior ones somewhat enlarged; one to a few small canines at anterior end of jaw; no teeth at symphysis. Villiform to small conical teeth on vomer and palatines. Fourth, fifth, or sixth (usually fourth or fifth) dorsal spine longest. First anal spine 1.50 to 2.05 in second anal spine. Pectoral fin reaching vertical through anterior part of anal fin or pectoral fin appreciably shorter.

Coloration.—In alcohol head mottled dorsally and laterally, lighter ventrally. Dark bar just anterior to dorsal fin descending from dorsal contour to terminate where opercle joins body dorsally. Rather weakly pigmented bar ventral to anterior part of spinous dorsal fin which descends for variable distances ventrally. Four darkly pigmented bands, usually narrower than lightly pigmented interspaces, encircling body: anteriormost ventral to middle of spinous dorsal fin, second extending from anterior end of soft dorsal fin to anterior end of anal fin, third ventral to posterior end of soft dorsal fin, posteriormost on caudal peduncle; area in anteriormost band just ventral to lateral line more heavily pigmented. Fins without distinctive pigmentation except where weakly pigmented bar and three anteriormost bands encroach upon dorsal and anal fins. Cuvier (1828) wrote that the body is a very vivid red-orange and is crossed by five black bands: the first is faint and originates beneath the first rays of the dorsal; the other four are very dark; the last encircles the base of the tail. Castelnau (1875:8) stated that this species has "five broad transverse black bands on a reddish ground colour."

Distribution.—We have examined specimens collected in Pacific and Indian ocean waters of Australia off New South Wales, Victoria, South Australia, and Western Australia. Scott (1979) reported two specimens from Tasmanian waters (one from off the northeastern coast in Banks Strait; the other off the southwestern coast, off Port Davey). Depths of capture are available for only a few collections; they range from 3.5 to 15 m.

Gender.—The only published spelling that we have seen for the specific name in combination with *Hypoplectrodes* is *nigrorubrum*. The compound *nigrorubrum* is an adjective and in association with *Hypoplectrodes* (which is masculine, see section on gender of *Hypoplectrodes*) must have the

Table 4.—Frequency distributions of numbers of pseudobranchial filaments in two species of *Hypoplectrodes*. Counts of name-bearing types are indicated by asterisks.

Species	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
H. nigroruber													2	2	1	2	—	2	3*	1	—	—	2
H. semicinctum	2	—	—	—	1	2	2	5	5	5	4	4*	3	2	1								

Table 5.—Data on morphometric characters for two species of *Hypoplectrodes*. Standard lengths are in mm; other measurements, in percentages of standard length.

Character	*H. nigroruber*		*H. semicinctum*	
	n	Range	n	Range
Standard length	15	84.8–203	17	77.9–177
Head, length	15	40.4–44.3	17	38.6–45.1
Snout, length	14	9.4–12.7	17	9.6–13.4
Orbit, diameter	15	6.6–9.3	17	6.5–10.0
Postorbital length of head	15	21.0–26.8	17	21.3–23.7
Upper jaw, length	15	16.1–19.3	17	17.7–19.8
Maxilla, width	15	4.9–6.4	17	5.5–6.7
Interorbital width	15	2.1–3.3	17	2.9–3.8
Body, depth at origin of dorsal fin	15	32.0–35.5	17	32.9–37.1
Predorsal length	15	37.4–41.0	17	38.2–43.9
Preanal length	15	62.6–73.1	17	65.4–73.0
Caudal peduncle, length	15	18.8–22.0	17	18.7–21.7
Caudal peduncle, depth	15	11.0–13.0	17	10.0–12.4
Pectoral fin, length	15	25.7–31.5	17	27.0–34.2
Pelvic fin, length	15	19.7–22.8	17	21.0–25.8
Anal fin, depressed length	15	25.4–30.9	17	28.7–32.2
Upper caudal-fin lobe, length	12	19.2–25.0	16	20.9–25.3
Lower caudal-fin lobe, length	14	19.6–25.0	17	20.9–25.7
Third dorsal spine, length	13	12.3–>15.4	17	11.9–>14.6
Fourth dorsal spine, length	15	13.9–17.2	17	13.1–17.3
Longest dorsal spine, length	15	13.9–18.2	16	13.5–17.6
First anal spine, length	15	5.8–8.3	16	7.3–9.8
Second anal spine, length	15	10.3–15.1	17	14.6–19.7
Third anal spine, length	14	9.5–14.0	16	12.3–17.1

masculine termination (ICZN, Article 31b); consequently the correct binomen is *Hypoplectrodes nigroruber*.

Remarks.—Through the courtesy of M. L. Bauchot we have examined the two syntypes (MNHN 7776) of *Plectropoma nigrorubrum*. Both are in poor condition, but the larger is in a better state of preservation. We hereby designate as the lectotype of *Plectropoma nigrorubrum* Cuvier, 1828, the syntype of 189 mm SL, which retains MNHN 7776 as its catalog number; the paralectotype (142 mm SL) has been assigned a new number (MNHN 1988-799).

Material examined.—Sixteen specimens, 85 to 203 mm SL.

Lectotype: MNHN 7776 (189 mm SL); King George Sound, Western Australia; J. Quoy & P. Gaimard.

Paralectotype: MNHN 1988-799 (142 mm SL); same data as for lectotype.

Other material: USNM 42015 (one specimen, 193 mm SL), Port Jackson, New South Wales; USNM 42019 (1, 198), Port Jackson, New South Wales; CAS-SU 9189 (1, 203), Maroubra, New South Wales; CAS-SU 20797 (1, 199), Port Hacking, New South Wales; NMV A2554 (1, 174), Cape Wellington, Wilson's Promontory, Victoria, 39°4.1′S, 146°28.6′E, <10 m, R. Kuiter and M. McDonald, 9 Feb 1982; NMV A2588 (1, 163), western shore of Brown Head, Wilson's Promontory, Victoria, 39°2.7′S, 146°28.3′E, 15 m, T. Cochrane, R. Kuiter, and M. Larsen, 9 Feb 1982; NMV A3007 (1, 134), northern shore of Horn Point, Wilson's Promontory, Victoria, 39°1.6′S, 146°28.2′E, <10 m, R. Kuiter and M.

Fig. 3. Holotype of *Plectropoma semicinctum,* MNHN 7777, 146 mm SL; Juan Fernández Islands.

McDonald, 9 Feb 1982; USNM 177114 (1, 157), around Kangaroo Island and St. Stephens Bay, South Australia, Howard, Mar–Apr 1952; NMV A289 (1, 86), Cape Cassini, Kangaroo Island, South Australia, 35°35′S, 137°19′E, W. Gosline and J. Glover, 17 Aug 1966; AMNH 31307 (4, 85–128), northeast and southwest sides of North Point, south of Boulder Hill, Western Australia, ca. 34°56′S, ca. 118°13′E, 3.5 m, Nelson, Butler, and Rosen, 14 Mar 1969; NMV A5061 (1, 167), Champion Bay, Western Australia, 28°46′S, 114°36′E.

Hypoplectrodes semicinctum
(Valenciennes, 1833)
Figs. 3–5; Tables 1–6

Plectropoma semicinctum Valenciennes, 1833:442 (original description; holotype MNHN 7777, 146 mm SL; type locality Juan Fernández Islands, eastern Pacific Ocean).

Scopularia rubra de Buen, 1959:95 (original description and illustration; holotype EBMC 123–124,174 mm TL, apparently lost; type locality Cumberland Bay, Más a Tierra Island, Juan Fernández Islands, eastern Pacific Ocean).

Diagnosis.—Lateral-line tubes reaching posterior borders of scales; tubes of anterior lateral-line scales bifurcate; those of posterior scales unbranched. Scales on body anterior to dorsal fin not greatly reduced in size (except one of 38 specimens with small area of reduced scales adjacent to anterior end of dorsal fin). Posteroventral corner of maxilla usually with prominent extension. Ventral margin of preopercle with two or three, usually three, antrorse spines; spines frequently covered by skin. Vertebrae 27 (10 precaudal + 17 caudal). Pleural ribs on vertebrae 3 through 10. Dorsal fin rays X, 19 to 22. Anal fin rays III, seven to nine (usually eight). Pectoral-fin rays 15 to 18 (usually 16 or 17). Gillrakers, including rudiments, on first gill arch 4 to 6 + 12 to 14—total 17 to 20; developed gillrakers on lower limb 8 or 9. Tubed lateral-line scales 48 to 55, most frequently 48 to 51. Scales from anal-fin origin to lateral line 16 to 20

Fig. 4. *Hypoplectrodes semicinctum,* MCZ 46165, 108 mm SL; Juan Fernández Islands.

(counted posterodorsally), 19 to 24 (counted anterodorsally). Rows of cheek scales 14 to 19. Pseudobranch with 14 to 28 filaments, tending to increase in number with increase in SL. Length of second anal spine 14.6 to 19.7% SL. Body usually with 9 darkly pigmented bars (including one on nape); bars wider than lightly pigmented interspaces.

Description.—Characters included in the combined description of *H. nigroruber* and *H. semicinctum* and those presented in the species diagnosis form part of the species description. Frequency distributions for a number of meristic traits are in Tables 1 to 4; morphometric data appear in Table 5.

Procurrent caudal-fin rays 8 to 10 (very rarely 10) dorsally, 6 to 9 (usually 7 or 8) ventrally. Epipleural ribs associated with first 9 or 10 vertebrae (usually first 9). Anal trisegmental pterygiophores 0 to 3 (most frequently 1). Rows of scales between lateral

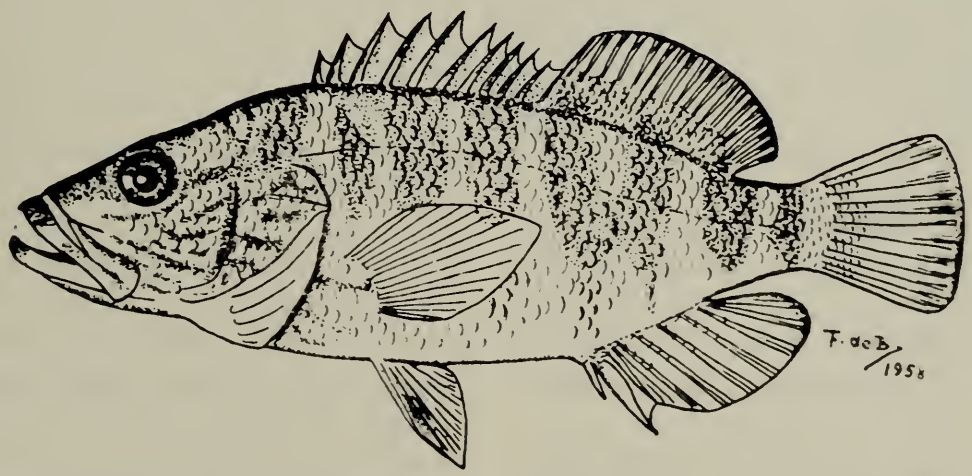

Fig. 5. Holotype of *Scopularia rubra,* EBMC 123-124, 174 mm TL (from de Buen, 1959); Juan Fernández Islands.

Table 6.—Comparisons of data on *Hypoplectrodes semicinctum* and data from de Buen (1959) on holotype and paratype of *Scopularia rubra* (EBMC 123–124). Standard lengths and total lengths are in mm; other measurements in percentages of standard length (% SL) or percentages of head length (% HL). L = left; R = right; ruds. = rudimentary gillrakers; est. = standard lengths estimated (see text); > = slight damage to caudal fin.

Character	*H. semicinctum*		*S. rubra*
	Range	Holotype	Holotype and paratype
Dorsal-fin rays	X, 19–22	X, 19	X, 20
Anal-fin rays	III, 7–9	III, 8	III, 8
Pectoral-fin rays	15–18	16	16
Gillrakers:			
Total	17–20	20	16
Upper limb	4–6 (1+3–5 ruds.)	6 (1+5 ruds.)	5 (1+4 ruds.)
Lower limb	12–14 (8 or 9+4–6 ruds.)	14 (9+5 ruds.)	11 (8+3 ruds.)
Lateral-line scales	48–55	50 (L), 49 (R)	—
Scales in longitudinal line (see text)	—	ca. 50 (L), ca. 53 (R)	49–52
Scales above lateral line	5–7	6	5 or 6
Scales below lateral line (see text)	16–20	ca. 16	14 or 15
Standard length	77.9–177	146	143 and 107 (est.)
Total length	97.3–214	>179	174 and 131
	% SL	% SL	% SL
Head, length	38.6–45.1	38.6	39.3–41.5
Body, depth (greatest)	33.3–38.8	33.7	34.5–34.9
Body, width (greatest)	15.3–20.5	15.9	18.6–18.8
Predorsal length	38.2–43.9	38.2	40.0–41.5
Preanal length	65.4–73.0	71.2	72.4–76.4
Prepelvic length	37.5–45.8	44.9	46.2–52.8
Dorsal-fin base	51.9–58.1	53.8	50.0–53.8
	% HL	% HL	% HL
Snout, length	23.1–31.1	27.8	34.0–36.5
Orbit, diameter	14.9–24.0	19.9	17.5–22.7
Postorbital length of head	50.9–55.6	55.1	50.0–52.2
Interorbital width	6.8–9.6	9.6	11.3–14.0
Caudal peduncle, depth	23.2–29.8	27.0	29.7–29.8
Pectoral-fin base, width	16.8–21.3	20.2	20.4–22.8
Pectoral fin, length	65.7–80.6	70.9	63.6–64.9
Pelvic fin, length	50.4–61.8	56.4	43.8–50.0

line and mid-base of spinous dorsal fin 3 or 4 (most frequently 4). Scales from dorsal-fin origin to lateral line 5 to 7 (most frequently 6). Circum-caudal-peduncle scales 27 to 32 (usually 28 to 30).

Depth of body (at origin of dorsal fin) 2.70 to 3.05, length of head 2.20 to 2.60 in SL. Horizontal diameter of bony orbit 4.15 to 6.75 in length of head, 0.95 to 2.05 in length of snout. Bony interorbital width 10.45 to 14.75 in length of head, 1.70 to 3.30 in diameter of bony orbit. Jaws nearly equal or lower jaw exceeding upper when mouth closed. Maxilla usually falling short of vertical through posterior margin of orbit. Anterior naris at distal end of tube; posterior border of tube elongated slightly, but falling short of posterior naris when reflected. Pre-

maxilla with band of small conical teeth; band expanded anteriorly; posterior teeth in expanded part of band (adjacent to symphysis) enlarged and posteriorly directed; one or two canines at anterior end of jaw; no teeth at symphysis. Dentary with band of small conical teeth; band somewhat expanded adjacent to symphysis; one to three canines at about middle of band; numerous enlarged posteriorly directed conical teeth at anterior end of band near symphysis; one or two canine teeth (may be exserted) at anterior end of jaw; no teeth at symphysis. Small conical teeth on vomer and palatines. Fourth, fifth, or sixth (usually fifth) dorsal spine longest. First anal spine 1.75 to 2.25 in second anal spine. Pectoral fin usually reaching vertical through anterior part of anal fin.

Coloration.—In alcohol dorsum of head mostly darkly mottled; cheek and opercular series with several mostly horizontal stripes, narrower than lighter interspaces. Body usually with nine darkly pigmented bars; bars evenly spaced, wider than lightly pigmented interspaces; anteriormost bar on nape (saddle-like, extending over dorsum to join bar from other side); second bar beginning on nape and beneath anterior part of spinous dorsal fin; third through fifth bars beneath spinous dorsal fin; sixth through eighth bars beneath soft dorsal fin; eighth bar also extending onto and over caudal peduncle to become continuous with corresponding bar from other side; eighth bar surrounding small lightly pigmented area dorsally just posterior to base of soft dorsal fin; ninth bar on caudal peduncle; second through fifth bars usually extending about 60 to 70% of distance from dorsum to ventral midline (on specimens more than ca. 100 mm SL; on smaller specimens these bars may extend further ventrally); on many specimens sixth through eighth bars becoming very narrow ventrally, sometimes reaching anal fin or ventral border of caudal peduncle (eighth); very frequently eighth and ninth bars becoming narrowly confluent with corresponding bars from other side; bars frequently showing various anastomoses, often bars three and four, four and five, and six and seven uniting broadly. Fins mostly straw colored except where dark bars extend onto dorsal and anal fins.

Valenciennes (1833) described the coloration of the holotype of *Plectropoma semicinctum.* He wrote that the colors of this fish are a beautiful vermilion red, traversed by eight half bands of a bright red brown, that descend on the back and stop on the middle of the sides, so as to form half belts on the sides. Only the last almost encircles the entire tail. Some paler and oblique brown bars cross the cheeks, and form on the opercle indistinct rivulations. The dorsal and caudal are reddish. The pectorals, ventrals, and anal are olive, mixed with the red that forms the general background color. De Buen (1959) stated that *Scopularia rubra* is red with black bands.

Distribution.—We have examined specimens of *H. semicinctum* collected in the eastern South Pacific off the Juan Fernández Islands and San Félix Island in shallow waters with a maximum depth of 20 m. Yáñez-Arancibia (1975) illustrated a specimen identified as *Scopularia rubra* that was collected at Easter Island. This drawing is a good representation of *H. semicinctum*; accordingly, then, it would appear that *H. semicinctum* can be considered as reliably reported from Easter Island. Randall & Cea Egaña (1984) included *Ellerkeldia rubra* (de Buen), based on Yáñez-Arancibia's (1975) report of *Scopularia rubra,* in their paper on native names of Easter Island fishes. Randall has not observed or collected *H. semicinctum* at Easter Island, despite the fact that he has collected fishes extensively there on three separate occasions, and he has not met any fishermen or divers there who are familiar with this species (J. E. Randall, pers. comm.). Consequently, Randall believes that there is no breeding population of *H. semicinctum* at Easter Island (at least not in shallow water) and that Yáñez-Aran-

cibia's report of a specimen from Easter Island was probably of a stray or possibly of a specimen for which the locality was incorrectly recorded.

Orthography.—The correct termination for the specific name *semicinctum* is debatable. Valenciennes (1833) proposed the name in the genus *Plectropoma.* The suffix "poma" is a neuter Greek noun, whereas the suffix "cinctum" is either a neuter Latin noun or a verbal adjective, the perfect passive participle of the Latin verb "cingo." If a species-group name is a noun in apposition, it keeps the same termination without regard to the gender of the generic name with which it is associated (ICZN, Article 31b[ii]), but a species-group name that ends in a Latin participle in the nominative singular "must agree in gender with the generic name with which it is at any time combined, and its termination must be changed according to Latin inflection" (ICZN, Article 31b).

It can be argued that Valenciennes (1833) did not indicate whether he meant *semicinctum* to be a verbal adjective or a noun in apposition to *Plectropoma* because there is nothing in the original description per se to show his intent. Jordan (1891) described the genus *Gilbertia* and designated *Plectropoma semicinctum* as the type species. Further on he used the binomen *Gilbertia semicincta* and gave the etymology of *semicincta* as "semi"—half, "cinctus"—belted, indicating that he considered the second part of the compound to be a participle. The combination *Gilbertia semicincta* has been used by a number of other authors (including Boulenger 1895, Rendahl 1921, de Buen 1959, Sepúlveda Vidal & Pequeño 1985). Bauchot et al. (1984) used the binomen *Ellerkeldia semicincta*—*semicincta* agreeing in gender with *Ellerkeldia.* It appears that the evidence of usage could be considered as decisive in the sense of the Code (ICZN, Article 31b[i]), and that the specific name is a verbal adjective (spelled *semicinctus* in combination with *Hypoplectrodes*).

On the other hand it can be asserted that Valenciennes did intend *semicinctum* as a noun, because it is essentially the Latin equivalent of the last part of the French vernacular name, Le PLECTROPOME A DEMI-CEINTURES (=the plectropome with half girdles), which precedes the original description. Support for this view is given by the facts that the very next species described by Valenciennes (1833), *Mesoprion isodon,* is preceded by the French name Le MÉSOPRION A DENTS ÉGALES, that *Plectropoma nigrorubrum,* described by Cuvier (1828), is preceded by Le PLECTROPOME ROUGE ET NOIR, and that in each of these cases the specific name is a translation of the last part of the French name and the same part of speech (nouns in the first instance, adjectives in the second). We prefer this latter interpretation—that Valenciennes did indeed indicate that he regarded the name *semicinctum* as a noun, and consider the correct binomen for this species to be *Hypoplectrodes semicinctum.*

Remarks.—As mentioned in the introduction, the junior author was convinced some years ago after comparing the original descriptions that *Plectropoma semicinctum* and *Scopularia rubra* are synonymous. Because of a few discrepancies between Valenciennes' (1833) description of *P. semicinctum* and de Buen's (1959) description of *S. rubra,* the senior author disagreed. Valenciennes described the presence of three strong antrorse spines on the lower limb of the preopercle and gave the anal- and pectoral-fin ray counts as III, 7 and 15, respectively; in contrast, de Buen did not mention the presence of any preopercular spines (although he recorded the occurrence of serrae on the upper limb of the preopercle) and gave the anal- and pectoral-fin ray counts as III, 8 and 16, respectively. In de Buen's illustration of the holotype of *S. rubra* (see Fig. 5) the upper limb of the preopercle is serrate, but the lower limb is smooth. (Although de Buen mentioned *H. semicinctum,* as *Gilbertia semicincta,* in a list near the beginning of his paper, he did not compare it with *S. rubra.*)

Despite a number of attempts over a period of more than 15 years, we have been unable to find de Buen's type material of *S. rubra*; the types are apparently lost. However, we have examined the holotype of *P. semicinctum* and find that the discrepancies noted above between the two original descriptions can be easily resolved. Valenciennes' (1833) counts of III, 7 (anal-fin rays) and 15 (pectoral-fin rays) are in error. The holotype of *P. semicinctum* has an anal-fin ray count of III, 8 and pectoral-fin ray count of 16 (in each fin). (Valenciennes was also inaccurate when he recorded the dorsal-fin ray count of the holotype of *P. semicinctum* as X, 20; the correct count is X, 19. This difference is probably the result of counting the last soft ray, which is split to the base, as two elements rather than as one.) Frequently in specimens of species of *Hypoplectrodes* the antrorse spines on the ventral margin of the preopercle are covered by skin and easily overlooked, despite the fact that they are typically well developed. In view of the overall close similarity between specimens of *H. semicinctum* and de Buen's description of *S. rubra* (see Table 6), it is reasonable to assume that the preopercular spines on de Buen's specimens were obscured by skin.

In Table 6 data taken by us on specimens of *H. semicinctum* are compared with those given by de Buen on the holotype and paratype of *S. rubra.* De Buen gave total lengths, but did not give standard lengths for his material. We have estimated the standard lengths of his specimens based on our measurements of total and standard lengths of 15 specimens of *H. semicinctum* (SL = a + b [TL], where a = −5.2094, b = 0.8541, r = 0.9995). The meristic data are in close agreement; with the exception of two characters (gillrakers and scales below the lateral line) de Buen's counts fall within the ranges we obtained for *H. semicinctum,* and de Buen's counts for those two characters are just outside our ranges. De Buen's ranges for several morphometric characters fall outside our ranges. Because our morphometric data are based on a relatively small number of specimens (16 or 17), de Buen's ranges may be reasonable extensions of ours. Alternatively, in some cases de Buen's methods of measuring may have been different from ours or we may have misinterpreted his methods (see section on abbreviations and methods), perhaps as a result of not adequately translating his Spanish into English (although we had our translation edited by Dr. José Escobar, Spanish faculty, College of Charleston). In any event we consider our lack of complete agreement with de Buen's morphometric data to be relatively minor in view of the general similarity we find between de Buen's description of *S. rubra* and the specimens of *H. semicinctum* that we examined. The striking resemblance between *H. semicinctum* and de Buen's *S. rubra* can be seen by comparing Figs. 3 and 4 with Fig. 5 and by comparing the colorations of the two nominal species as described by Valenciennes and de Buen. Accordingly, then, we consider *Scopularia rubra* de Buen, 1959, to be a junior synonym of *Hypoplectrodes semicinctum* (Valenciennes, 1833). (G. R. Allen and J. E. Randall, pers. comm., have arrived at the same conclusion regarding the synonymy of *S. rubra* and *H. semicinctum.*)

Material examined.—Thirty-eight specimens, 38–177 mm SL.

Holotype: MNHN 7777 (146 mm SL); Juan Fernández Islands; C. Gay.

Other material: MCZ 4827 (two specimens, 134–141 mm SL), Juan Fernández Islands, Hassler Expd., 1872; USNM 176414 (1, 142), Cumberland Bay, Juan Fernández Islands, 33°38.0′S, 78°50′W, M. J. Lobell, 20 Feb 1945; SIO65-634 (17, 38–160), Cumberland Bay, Juan Fernández Islands, 33°38′20″S, 78°48′50″W, 6–11 m, W. Baldwin et al., 11 Dec 1965; MCZ 46165 (7, 78–177), West Bay, Más a Tierra Island, Juan Fernández Islands, 0–20 m, R/V *Anton Bruun,* cr. XIII, coll. 15, Jan 1966; CAS 24143 (4, 88–115), data as for MCZ 46165; SIO65-624 (4, 86–157), San Félix Island, NW side, 26°17′30″S, 80°05′40″W, 0–9 m,

W. Baldwin et al., 5 Dec 1965; SIO65-628 (2, 106–156), locality as for SIO65-624, 0–8 m, W. Baldwin et al., 6 Dec 1965.

Homonymy

Allen (1976) described *Ellerkeldia rubra* from Western Australia. As a result of our synonymizing *Scopularia rubra* with *Hypoplectrodes semicinctum, Ellerkeldia rubra* Allen, 1976 (=*Hypoplectrodes ruber*) becomes a junior secondary homonym of *S. rubra* de Buen, 1959. Gerald R. Allen and John E. Randall plan to propose a new name to replace *Hypoplectrodes ruber.*

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